

04/03 # 1/24  
Page 1 of 8



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RAW SEQUENCE LISTING  
PATENT APPLICATION: US/10/044,716

DATE: 02/11/2002  
TIME: 10:05:07

Input Set : A:\270-070US.ST25.txt  
Output Set: N:\CRF3\02112002\J044716.raw

3 <110> APPLICANT: LANGENFELD, John  
5 <120> TITLE OF INVENTION: BONE MORPHOGENETIC PROTEIN-2 IN THE TREATMENT AND DIAGNOSIS  
OF CANCER  
7 <130> FILE REFERENCE: 270/070US  
C--> 9 <140> CURRENT APPLICATION NUMBER: US/10/044,716  
10 <141> CURRENT FILING DATE: 2002-01-11  
12 <150> PRIOR APPLICATION NUMBER: US60/261,252  
13 <151> PRIOR FILING DATE: 2001-01-12  
15 <160> NUMBER OF SEQ ID NOS: 16  
17 <170> SOFTWARE: PatentIn version 3.1  
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45 <223> OTHER INFORMATION: Region: TGF-beta propeptide  
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51 <223> OTHER INFORMATION: Allele = "T"; Allele = "G"  
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66 <220> FEATURE:  
67 <221> NAME/KEY: misc\_feature

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75 <223> OTHER INFORMATION: TGFB; Region: Transforming growth factor-beta (TGF-beta)
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85 gagaaggagg aggcaaagaa aaggaacgga cattcggtcc ttgcgccagg tccttgacc    240
87 agagttttc catgtggacg ctcttcaat ggacgtgtcc cgcgtgtctt cttagacgga    300
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93 ttg ctg ctt ccc cag gtc ctc ctg ggc ggc gct ggc ctc gtt ccg      401
94 Leu Leu Leu Pro Gln Val Leu Leu Gly Gly Ala Ala Gly Leu Val Pro
95          15          20          25
97 gag ctg ggc cgc agg aag ttc gcg gcg tcg tcg ggc cgc ccc tca      449
98 Glu Leu Gly Arg Arg Lys Phe Ala Ala Ala Ser Ser Gly Arg Pro Ser
99          30          35          40
101 tcc cag ccc tct gac gag gtc ctg agc gag ttc gag ttg cgg ctg ctc     497
102 Ser Gln Pro Ser Asp Glu Val Leu Ser Glu Phe Glu Leu Arg Leu Leu
103          45          50          55
105 agc atg ttc ggc ctg aaa cag aga ccc acc ccc agc agg gac gcc gtg     545
106 Ser Met Phe Gly Leu Lys Gln Arg Pro Thr Pro Ser Arg Asp Ala Val
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109 gtg ccc ccc tac atg cta gac ctg tat cgc agg cac tca ggt cag ccg     593
110 Val Pro Pro Tyr Met Leu Asp Leu Tyr Arg Arg His Ser Gly Gln Pro
111          75          80          85          90
113 ggc tca ccc gcc cca gac cac cgg ttg gag agg gca gcc agc cga gcc     641
114 Gly Ser Pro Ala Pro Asp His Arg Leu Glu Arg Ala Ala Ser Arg Ala
115          95          100          105
117 aac act gtg cgc agc ttc cac cat gaa gaa tct ttg gaa gaa cta cca     689
118 Asn Thr Val Arg Ser Phe His His Glu Glu Ser Leu Glu Glu Leu Pro
119          110          115          120
121 gaa acg agt ggg aaa aca acc cgg aga ttc ttc ttt aat tta agt tct     737
122 Glu Thr Ser Gly Lys Thr Thr Arg Arg Phe Phe Phe Asn Leu Ser Ser
123          125          130          135
125 atc ccc acg gag gag ttt atc acc tca gca gag ctt cag gtt ttc cga     785
126 Ile Pro Thr Glu Glu Phe Ile Thr Ser Ala Glu Leu Gln Val Phe Arg
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129 gaa cag atg caa gat gct tta gga aac aat agc agt ttc cat cac cga     833
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131          155          160          165          170
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134 Ile Asn Ile Tyr Glu Ile Ile Lys Pro Ala Thr Ala Asn Ser Lys Phe
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| 138 | Pro   | Val                | Thr                         | Arg | Leu | Leu   | Asp | Thr  | Arg | Leu | Val  | Asn | Gln | Asn | Ala | Ser |      |
| 139 |       |                    |                             | 190 |     |       |     | 195  |     |     | 200  |     |     |     |     |     |      |
| 141 | agg   | tgg                | gaa                         | agt | ttt | gat   | gtc | acc  | ccc | gct | gtg  | atg | cgg | tgg | act | gca | 977  |
| 142 | Arg   | Trp                | Glu                         | Ser | Phe | Asp   | Val | Thr  | Pro | Ala | Val  | Met | Arg | Trp | Thr | Ala |      |
| 143 |       |                    |                             |     | 205 |       |     | 210  |     |     | 215  |     |     |     |     |     |      |
| 145 | cag   | gga                | cac                         | gcc | aac | cat   | gga | tcc  | gtg | gtg | gaa  | gtg | gcc | cac | ttg | gag | 1025 |
| 146 | Gln   | Gly                | His                         | Ala | Asn | His   | Gly | Phe  | Val | Val | Glu  | Val | Ala | His | Leu | Glu |      |
| 147 |       |                    |                             |     | 220 |       |     | 225  |     |     | 230  |     |     |     |     |     |      |
| 149 | gag   | aaa                | caa                         | ggg | gtt | gtc   | tcc | aag  | aga | cat | gtt  | agg | ata | agc | agg | tct | ttg  |
| 150 | Glu   | Lys                | Gln                         | Gly | Val | Ser   | Lys | Arg  | His | Val | Arg  | Ile | Ser | Arg | Ser | Leu |      |
| 151 | 235   |                    |                             |     |     | 240   |     |      |     | 245 |      |     | 250 |     |     |     |      |
| 153 | cac   | caa                | gat                         | gaa | cac | agc   | tgg | tca  | cag | ata | agg  | cca | ttg | cta | gta | act | 1121 |
| 154 | His   | Gln                | Asp                         | Glu | His | Ser   | Trp | Ser  | Gln | Ile | Arg  | Pro | Leu | Leu | Val | Thr |      |
| 155 |       |                    |                             |     | 255 |       |     |      | 260 |     |      | 265 |     |     |     |     |      |
| 157 | ttt   | ggc                | cat                         | gat | gga | aaa   | ggg | cat  | cct | ctc | cac  | aaa | aga | gaa | aaa | cgt | 1169 |
| 158 | Phe   | Gly                | His                         | Asp | Gly | Lys   | Gly | His  | Pro | Leu | His  | Lys | Arg | Glu | Lys | Arg |      |
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| 161 | caa   | gcc                | aaa                         | cac | aaa | cag   | cgg | aaa  | cgc | ctt | aag  | tcc | agc | tgt | aag | aga | 1217 |
| 162 | Gln   | Ala                | Lys                         | His | Lys | Gln   | Arg | Lys  | Arg | Leu | Lys  | Ser | Ser | Cys | Lys | Arg |      |
| 163 |       |                    |                             |     | 285 |       |     | 290  |     |     | 295  |     |     |     |     |     |      |
| 165 | cac   | cct                | ttg                         | tac | gtg | gac   | ttc | agt  | gac | gtg | ggg  | tgg | aat | gac | tgg | att | 1265 |
| 166 | His   | Pro                | Leu                         | Tyr | Val | Asp   | Phe | Ser  | Asp | Val | Gly  | Trp | Asn | Asp | Trp | Ile |      |
| 167 |       |                    |                             |     | 300 |       |     | 305  |     |     | 310  |     |     |     |     |     |      |
| 169 | gtg   | gct                | ccc                         | ccg | ggg | tat   | cac | gcc  | ttt | tac | tgc  | cac | gga | gaa | tgc | cct | 1313 |
| 170 | Val   | Ala                | Pro                         | Pro | Gly | Tyr   | His | Ala  | Phe | Tyr | Cys  | His | Gly | Glu | Cys | Pro |      |
| 171 | 315   |                    |                             |     |     | 320   |     |      |     | 325 |      |     | 330 |     |     |     |      |
| 173 | ttt   | cct                | ctg                         | gct | gat | cat   | ctg | aac  | tcc | act | aat  | cat | gcc | att | gtt | cag | 1361 |
| 174 | Phe   | Pro                | Leu                         | Ala | Asp | His   | Leu | Asn  | Ser | Thr | Asn  | His | Ala | Ile | Val | Gln |      |
| 175 |       |                    |                             |     | 335 |       |     |      | 340 |     |      | 345 |     |     |     |     |      |
| 177 | acg   | ttg                | gtc                         | aac | tct | gtt   | aac | tct  | aag | att | cct  | aag | gca | tgc | tgt | gtc | 1409 |
| 178 | Thr   | Leu                | Val                         | Asn | Ser | Val   | Asn | Ser  | Lys | Ile | Pro  | Lys | Ala | Cys | Cys | Val |      |
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| 182 | Pro   | Thr                | Glu                         | Leu | Ser | Ala   | Ile | Ser  | Met | Leu | Tyr  | Leu | Asp | Glu | Asn | Glu |      |
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204 <220> FEATURE:  
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 224 Phe Ala Ala Ala Ser Ser Gly Arg Pro Ser Ser Gln Pro Ser Asp Glu  
 225 35 40 45  
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 229 50 55 60  
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 233 65 70 75 80  
 236 Asp Leu Tyr Arg Arg His Ser Gly Gln Pro Gly Ser Pro Ala Pro Asp  
 237 85 90 95  
 240 His Arg Leu Glu Arg Ala Ala Ser Arg Ala Asn Thr Val Arg Ser Phe  
 241 100 105 110  
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 264 Asp Thr Arg Leu Val Asn Gln Asn Ala Ser Arg Trp Glu Ser Phe Asp  
 265 195 200 205  
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 284 Gly His Pro Leu His Lys Arg Glu Lys Arg Gln Ala Lys His Lys Gln  
 285 275 280 285  
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 305 355 360 365  
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336 &lt;223&gt; OTHER INFORMATION:

339 &lt;220&gt; FEATURE:

340 &lt;221&gt; NAME/KEY: CDS

341 &lt;222&gt; LOCATION: (1)..(699)

342 &lt;223&gt; OTHER INFORMATION: Noggin, mouse, homolog of

345 &lt;300&gt; PUBLICATION INFORMATION:

346 <301> AUTHORS: Valenzuela,D.M., Economides,A.N., Rojas,E., Lamb,T.M., Nunez,L.,  
 Jones,P., Ip,N.Y., Espinosa,R., Brannan,C.I., Gilbert,D.J., Copeland,N.G., Jenkins,N.A.,  
 LeBeau,M.M., Harland,R.M. and Yancopoul

347 <302> TITLE: Identification of mammalian noggin and its expression in the adult  
 nervous system

348 &lt;303&gt; JOURNAL: J. Neurosci.

349 &lt;304&gt; VOLUME: 15

350 &lt;305&gt; ISSUE: 9

351 &lt;306&gt; PAGES: 6077-6084

352 &lt;307&gt; DATE: 1995

353 &lt;308&gt; DATABASE ACCESSION NO: NM\_005450

354 &lt;309&gt; DATABASE ENTRY DATE: 2000-11-01

355 &lt;313&gt; RELEVANT RESIDUES: (1)..(699)

357 &lt;300&gt; PUBLICATION INFORMATION:

358 <301> AUTHORS: McMahon,J.A., Takada,S., Zimmerman,L.B., Fan,C.M., Harland,R.M. and  
 McMahon, A.P.

359 <302> TITLE: Noggin-mediated antagonism of BMP signaling is required for growth and  
 patterning of the neural tube and somite

360 &lt;303&gt; JOURNAL: Genes Dev.

361 &lt;304&gt; VOLUME: 12

362 &lt;305&gt; ISSUE: 10

363 &lt;306&gt; PAGES: 1438-1452

364 <307> DATE: 1998

VERIFICATION SUMMARY

PATENT APPLICATION: US/10/044,716

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L:9 M:270 C: Current Application Number differs, Replaced Current Application Number